

REMARKS

Claims one through nine remain in this application. No claims beyond those for which a fee has been paid are added by this amendment. The applicants request further examination of the application in view of the amendments and remarks as set out below.

Paragraph 2 of the communication dated May 22, 2002, rejects claims 1 and 5 under 35 U.S.C. 112, first paragraph, for reciting "a distance substantially the length of the link" in the case of claim 1 and reciting "a distance substantially equal to a length of the link plates" in the case of claim 5. That rejection states that the claimed subject matter is not described by the application or shown in the figures. That rejection is not understood.

That cited claim language is supported by the application description of an embodiment of the invention, referring to Figs. 3 and 4, as including links having "a concave surface 12 that extends from a location adjacent to one aperture 13 substantially the length of the link 10 along the chain direction to a location adjacent to the other aperture 13." Page 12 lines 13 – 16. Surface 12 is identified by both Figs. 3 and 4 and apertures 13 are identified by Fig. 4. Similarly, another embodiment of the invention shown by Figs. 5 and 6 includes links 22 having a flat back-side link surface 24 that "is substantially the length of the link 22 along the chain direction of the link 22." Page 14 – 15. The surface 24 is shown by both Figs. 5 and 6. A variation of the embodiment shown by Figs. 5 and 6 is shown by Figs. 7 and 8. This embodiment likewise includes a surface 37 that is a modification of the surface 24. Page 15 lines 13 – 17. The applicants believe that one skilled in the art would understand from these descriptions and figures how to make and use the claimed invention. The language of claims 1 and 5 are fully supported by the application and that applicants request that the rejection under section 112 first paragraph be withdrawn.

Paragraph 4 of the communication of May 22, 2002 rejects claim 4 under 35 U.S.C. §112 second paragraph as indefinite for reciting a surface extending “a distance that approximates the distance from a center of a member joining the link to one adjacent row of links to a center of a member joining the link to another adjacent row of links.” Claim 1, as originally presented, required a chain having inner and outer link rows interleaved along the chain direction and adjacent rows joined to each other at interleaved portions by members extending through the interleaved portions. Claim 1 has been amended to clarify that each link is interleaved at opposite ends along the chain direction and is therefore joined by a member at opposite ends. Claim 4, which depends from claim 1, is consistent with the requirement of claim that two members extend through a link at separated locations. The language of claim 4 agrees with the language of claim 1 as amended. The applicants request that the rejection under section 112 second paragraph be withdrawn.

Paragraph 6 of the communication of May 22, 2002 rejects claims 1 – 6 and claim 9 under 35 U.S.C. §102(b) as anticipated by U.S. Patent no. 5,989,140 to Ichikawa et al. (Ichikawa et al. ‘140). Ichikawa et al. ‘140 discloses a chain having conventional teeth on the front side of the chain and including plates that form a flat back surface either extending substantially the length of the link, surface F of link 3 as shown by Fig. 3 of Ichikawa et al. ‘140, or between to sub-teeth t’, surface f of links 7 and 2A as also shown by Fig. 3. Ichikawa et al. ‘140 also discloses a sprocket 6 having teeth that have tops 6A that are arcuate and concentric with the rotational center of the sprocket 6. Ichikawa et al. ‘140 col. 4 lines 21 – 24. The arcuate tops 6A support the flat surfaces F and f of links 2 and 3 and the flat surfaces f of the links 7 and 2A. Id. at col. 4 lines 24 – 30. The flat surfaces F and f do not conform to the arcuate surface 6A of the sprocket .

The surfaces F and f of the chain disclosed by Ichikawa et al. 140 provide radial support for the chain but do not provide driving contact with the sprocket 6. Driving contact is provided by the sub-teeth t' that engage the teeth of the sprocket 6. Ichikawa et al. '140 col. 4 lines 1 – 5. The flat surfaces F and f do not conform to the arcuate tops 6A of the teeth of the sprocket 6 and cannot provide driving contact. Ichikawa et al. '140 teaches that driving contact can exist even if the surface f does not contact the arcuate surface 6A at all during engagement. Col. 4 lines 34 – 39.

In contrast to the flat faces F and f of Ichikawa et al. '140, applicants' invention, as claimed by independent claim 1 requires links that have a surface that conforms to the low profile protrusions of the sprocket and as claimed by independent claim 5 requires link plates having a back-side surface that closely conforms to a portion of the back-side sprocket. Both independent claims 1 and 5 have been amended to require that this conforming contact is also driving contact. Conforming contact and driving contact by a surface that extends substantially the length of the link along the chain direction are not taught by Ichikawa et al. '140. Applicant's invention, as originally claimed and as now claimed by independent claims 1 and 5 and by dependent claims 2 – 4 which depend from claim 1 and dependent claims 6 and 9 which depend from claim 5 is not anticipated by Ichikawa et al. '140.

Paragraph 8 of the communication of May 22, 2002 rejects claims 7 and 8 under 35 U.S.C. §103(a) as unpatentable over Ichikawa et al. '140 in view of U.S. patent no 270,723 (Aydelott '723). Claims 7 and 8 are dependent claims that depend from independent claim 5. Aydelott '723 discloses a polygonal shaped wheel having toothed sides. The wheel engages a chain having straight cog-links. Lines 47 – 50. The cog-links have cogs (teeth) that engage the cogs (teeth) on the periphery of the wheel. Lines 50 – 59. While Aydelott '723 teaches conforming and driving contact, it teaches conforming and driving contact by links forming a

series of teeth. In contrast, applicants' invention, as claimed, requires surfaces of links that conform to a back-side sprocket. The surfaces, as described by the application and depicted for the various embodiments, are "generally continuous smooth" surfaces. Page 16 – 17. Such surfaces are specifically contrasted to toothed profiles such as disclosed by Aydelott '723. Page 17 lines 4 – 7. Aydelott '723 does not teach or suggest applicants' invention. Aydelott '723 does not suggest modification of Ichikawa et al. '140 that teaches applicants' invention.

Neither Ichikawa et al. '140 nor Aydelott '723 nor any other prior art of record teaches or suggests applicant's invention as claimed.

Versions of these replacement paragraphs showing the changes that are made to the specification by these replacement paragraphs are attached.

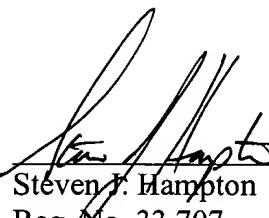
CONCLUSION

As set out above, the claims distinguish over the prior art of record. As discussed above, the claims are believed to be in condition for allowance, and that action is respectfully requested.

Please charge any additional fees or credit overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

Please note that deleted text is indicated by strikethrough and newly inserted text is underlined.

1. A silent chain and sprocket assembly comprising:
 - a sprocket having a plurality of low profile protrusions extending outwardly from said sprocket at locations spaced along an outer periphery of the sprocket;
 - 5 a silent chain having a series of ~~interleaved inner and outer link rows that are interleaved along a chain direction; inner link rows lying along a chain direction and a series of outer link rows, an outer link row between adjacent inner link rows and interleaved at opposite ends of the outer link row along the chain direction with the adjacent inner link rows;~~
 - 10 adjacent inner and outer link rows are joined to each other by members extending through interleaved portions of adjacent inner and outer link rows to form a rotatable joint between the adjacent inner and outer link rows;
 - the links of said inner and outer link rows form a surface that overlies the sprocket protrusions and conforms closely to said low profile protrusions on said sprocket for driving
 - 15 contact with the low profile sprocket; protrusions; and
 - the link surface extending along the chain direction a distance substantially the length of the link along the chain direction.

5. A silent chain and sprocket assembly comprising:
 - a front-side sprocket, said front-side sprocket having a plurality of teeth spaced about an outer periphery of said front-side sprocket;
 - a back-side sprocket, said back-side sprocket having a plurality of small, low profile, protrusions spaced about an outer periphery of said back-side sprocket;
- 10 a silent chain having a front-side and back-side, said front-side of said chain engaging said front-side sprocket and said back-side of said chain engaging said back-side sprocket;
- the chain having link plates forming inner and outer link rows, said inner and outer link rows interleaved along a chain direction;
- 15 the link plates having a front-side at the front-side of the chain, and a back-side at the back-side of the chain;
- the link plates forming two apertures spaced along the chain direction;
- the link plates forming two teeth to engage a tooth of said front-side sprocket at an end of the link along the chain direction, to engage a second tooth at another end of the link along the chain direction, and to engage a third tooth intermediate the teeth at the ends of the link plate;
- 20 the link plates defining a back-side surface that conforms closely to a portion of the back-side sprocket extending for driving contact and extends a distance substantially equal to a length of the link plates along the chain direction.